AAHC Report – October 2007
USA Comments

Guidelines for Aquatic Animal Health Surveillance

General comments

- The chapter is very good and overall well written
- The examples given are very good

Some observations and suggestions

- Article x.x.x.2: Principles of surveillance. The structured vs. non-random dichotomy implied in Point 1 c) and throughout this and other sections are somewhat confusing. The two are not mutually exclusive (for example, surveys may be non-random, but still be probability-based and thus highly structured). Perhaps a more effective criterion would be probability-based vs. non-probability-based (or opportunistic?) sampling, a distinction that would dictate the type and population-level of inferences that can be made from the data.

- Article x.x.x.6: Pathways to disease freedom. Point 3 includes a parenthetic reference to surveillance in wild animals ... stating that surveillance in wild aquatic animals is necessary to confirm absence. However, it should be recognized that surveillance in wild aquatic species is not a trivial extension of the rest of the chapter. For example, prevalence thresholds for cluster sampling levels do not transfer directly from farmed to wild aquatic species. The recommendation for a design prevalence of 2% at the fish level probably holds well enough (though capture methods will likely be less 'sensitive' at sick fish recovery in wild vs. enclosed populations). However, the cluster level is more difficult. Should cluster determinations be population or spatially-based? Fish populations are hard to define and distinguish ... so, in many situations, clustering at the population-level may be a difficult concept to implement. Spatial clusters (e.g. around watershed or habitat boundaries) are easier to distinguish and implement, however, what is the appropriate size for a division (since this division is likely to be somewhat arbitrary)? In this case, level of connectivity helps to define clusters; however, connectivity is not dichotomous (e.g., even estuaries are interconnected).

  For example, the Great Lakes basin covers approximately 1/20 of the watersheds of the United States. Watersheds within this basin are connected to some extent, so it is possible to think of this entire basin as a single cluster. Clearly 150 fish sampled from the entire basin would not be very convincing evidence of disease freedom. A better subdivision for cluster sampling is necessary for this situation. Lower-order hydrologic units could be one approach; however, any residual connectivity (e.g., water flow, fish migration, boat traffic) between these lower-order units would presumably facilitate pathogen spread. So, aiming for a 2% design

prevalence across (somewhat interconnected) geographic subunits may be overkill.

Therefore, a new example (or an extension of the oyster example) might demonstrate the types of questions requiring consideration for wild population surveillance. Alternatively, it might be sufficient to simply acknowledge that the methodologies and assumptions for wild aquatic animal surveillance may need to differ from those described for farmed.

- Suggest that the recommended general (disease non-specific) design thresholds be worded in more flexible terms. For example, under Article x.x.x.8 Point 4) d), very last dash bullet suggests that design prevalences for cluster-level sampling should not be greater than 2%. However, in some cases (as described above), a higher design prevalence may be justifiable.

- Similarly, 2 years of twice a year testing is stated as the standard determination for disease freedom determination. However, flexibility is implied elsewhere (e.g., in an example, and also in several comments that a single survey may achieve the same confidence as a series of smaller repeated surveys). If flexibility is intended, it should be expressed each time a specific threshold or guideline is stated (even if that seems redundant).

Other comments

- For consistency, there is a need to reconcile these surveillance guidelines with the specific existing and proposed disease chapters in the Aquatic Code with respect to disease-free status determinations. The surveillance guidance suggests 10 years for disease freedom attainment, while there is variation among the specific disease chapters.